Next Generation Air Transportation System
Joint Planning Office

"Where New Ideas are Welcome"

COE
November 7, 2003

John Kern
Chairman, JPO

Securing Our Future Through Air Transportation

Next Generation Air Transportation System
Joint Planning Office

Imagine the Possibilities

- Traveling without delay, on your schedule, directly between your home or place of business to your destination
- Arriving at an airport and walking directly to your aircraft
- Flying anywhere in the world and returning the same day
- Moving packages and products to any zip code in the nation the day they are ordered, international destinations the next day

Imagine the Possibilities

(Continued)

- Any community, regardless of size, having affordable access to air transportation
- A system without fatalities and major injuries
- A system so quiet that communities clamor to have an airport in their neighborhoods
- Seamless reservations and transition between modes

- Aerospace Commission
- National Research Council
- RTCA

Transforming the U.S. air transportation system to meet our civil aviation, national defense, and homeland security needs is a national priority.

- The Secretary of Transportation shall establish in the FAA a Joint Planning and Development Office
- Within a year, the Joint Program Office should present a plan to the Administration and Congress outlining the overall strategy, schedule, and resources needed to develop and deploy the nation's next generation air transportation system

Establish a Joint Planning Office

…that sets goals and **aligns** missions across government and industry to ensure that the United States stays at the **forefront** of aviation and **meets** the **demand** of the future

A Roadmap to 2025 and Beyond!

2003 JPO Coordination

- Coordinated JPO efforts across Government agencies.
  - House and Senate Science & Technology Committees and the Principles at FAA,TSA, DoD, DOC, NASA and DOT
- Coordinated with Industry.
  - AOPA, ATA, ATCA, ALPA, ACI, AIA, RAA, NBAA, NATA, NASAO, REDAC, RTCA, Boeing, Lockheed Martin, Northrup Grumman, GAMA, NDTA, and Raytheon
- Participated in ATCA workshop for industry & government (6/22)
- Advisory Committees
- Sr. Policy Committee established (9/26)

Why Transformation?

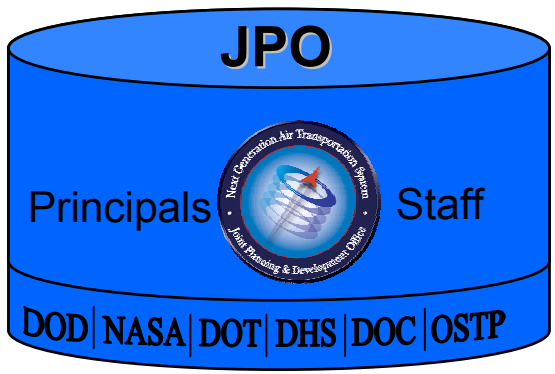
- Drive productivity and enhance economic growth
- Deliver capacity to accommodate future demand
- Expand flexibility while improving system security
- Retain U.S. technological leadership
- Good Government

Structure

- Sec of Transportation
- Sec of Air Force
- Dep. Secretary of Commerce
- Dep. Secretary of Homeland Security
- NASA Administrator
- FAA Administrator
- DOT Under Secretary for Policy

FAA ADMINISTRATOR

FRAMEWORK



Partners Agency Stakeholders

REDAC Industry Advisory

2003 Activities

Develop Draft Plans that include:

- National Vision for 2025
- Socio-Economic Demand Forecast
- Goals and Policy
- Operational Concepts and Transition Roadmap
- Research Requirements/Plan

CNSi / ATM System Goals

- **Safe**ly separate aircraft from each other, hazardous conditions including weather, terrain, other obstacles and ground vehicles
- Seamlessly **integrate civil, military** and homeland **security** requirements and operations
- Minimize the **life cycle cost** of air traffic service provider and airspace user operations
- Minimize impact of and **recover** quickly **from system failures**
- Minimize impact of and **recover** quickly **from** large external **perturbations**

CNSi / ATM System Goals

- Reduce **environmental** impact of air transportation operations
- Increase the **ease of use** from the airspace system user perspective
- Adapt with **agility** to changes in market forces, policy, technology, defense, and security needs
- **All air vehicle types** can operate while taking advantage of their unique characteristics
- Ensure that the system will be **globally interoperable**

CNSi / ATM Operational Concepts

Central Assumptions - Common Issues

- Open architecture and common information as a fundamental enabler for the future CNSi / ATM system
- More dependence on distributed assets
- Collaborative decision-making in a probabilistic context

CNSi / ATM Operational Concepts

Central Assumptions - Common Issues

- Automation and human decision making will be optimized to the function - especially in separation assurance and planning
- Many unique issues are associated with specific operational concepts - goal-driven trade studies supported by research, advanced modeling and simulation required

Transformational Operations
R&D Challenges

- Develop and evaluate total operational concept options (procedures, services, automation, etc.) that meet the CNSi/ATM System Goals
- Develop concepts / capabilities to maximize the capacity of landing/take-off facilities
- Develop capability to understand the robustness and resilience of air transportation networks and how to manage disruptions for minimum impact
- Explore system optimization techniques and decision-making under uncertainty

Transformational Operations

R&D Challenges *(Continued)*

- Understand human performance capabilities and limitations
- Optimize integration of human operators/user into future automated CNSi/ATM systems
- Develop techniques to minimize impact of aircraft noise on local communities
- Develop security operations for unconstrained passenger flow through airports
- Integrate airline and security information and operations into a gate-to-gate ATM system

Framework for National Plan

Outcomes with strategies and policy issues

Flexible & Accessible Air Transportation	Affordable for More Americans	Fast, Efficient & Reliable Air Transportation	Balance Critical National Priorities
Capacity Scalable to Market Demand	Promote Competition	Reduce Airport Terminal Transit Time	Ensure Human & System Security
Expand Air Service to More Communities	Reduce Taxes & Government Fees	Reduce Aircraft Transit Time	Enhance Aviation Safety
Ensure Access for All Services	Reduce Operation Cost (Expanding Capacity)	Improve On-time Performance	Reduce Impacts of Aircraft Noise & Noxious Emissions
Globally Interoperable	More Cost Effective Aircraft		Support Defense Readiness

SCOPE

The Air Transportation System

- The system that allows vehicles, both manned and unmanned, to operate safely, securely, and efficiently in the National Airspace System (NAS), including U.S. airports
- This system must:
  - Provide for mobility of people and goods
  - Be affordable and environmentally responsible
  - Support global interoperability
  - Meet the needs for defense and homeland security
  - Adapt to the demands of the free market
  - Fairly allocate scarce resources where necessary

Scope: Long-term Transformation

ADS-B

Airline to ATM Collaboration

Aircraft – Ground Datalink

Aircraft Surveillance & Situational Awareness Capability

More Runways

WAAS

SWIM

Infrastructure

Enhanced Weather Capability

Near All-Weather Capability

End to End Seamless Operations

Changing Roles

Consolidated Transportation Network

Performance Based Services

OEP

Evolution

Environmental Management

Low Wake/ Quiet Jets

Airport Planning

UAV Sense & Avoid

Small Airport Package

Transparent Screening

Greater On Demand Service

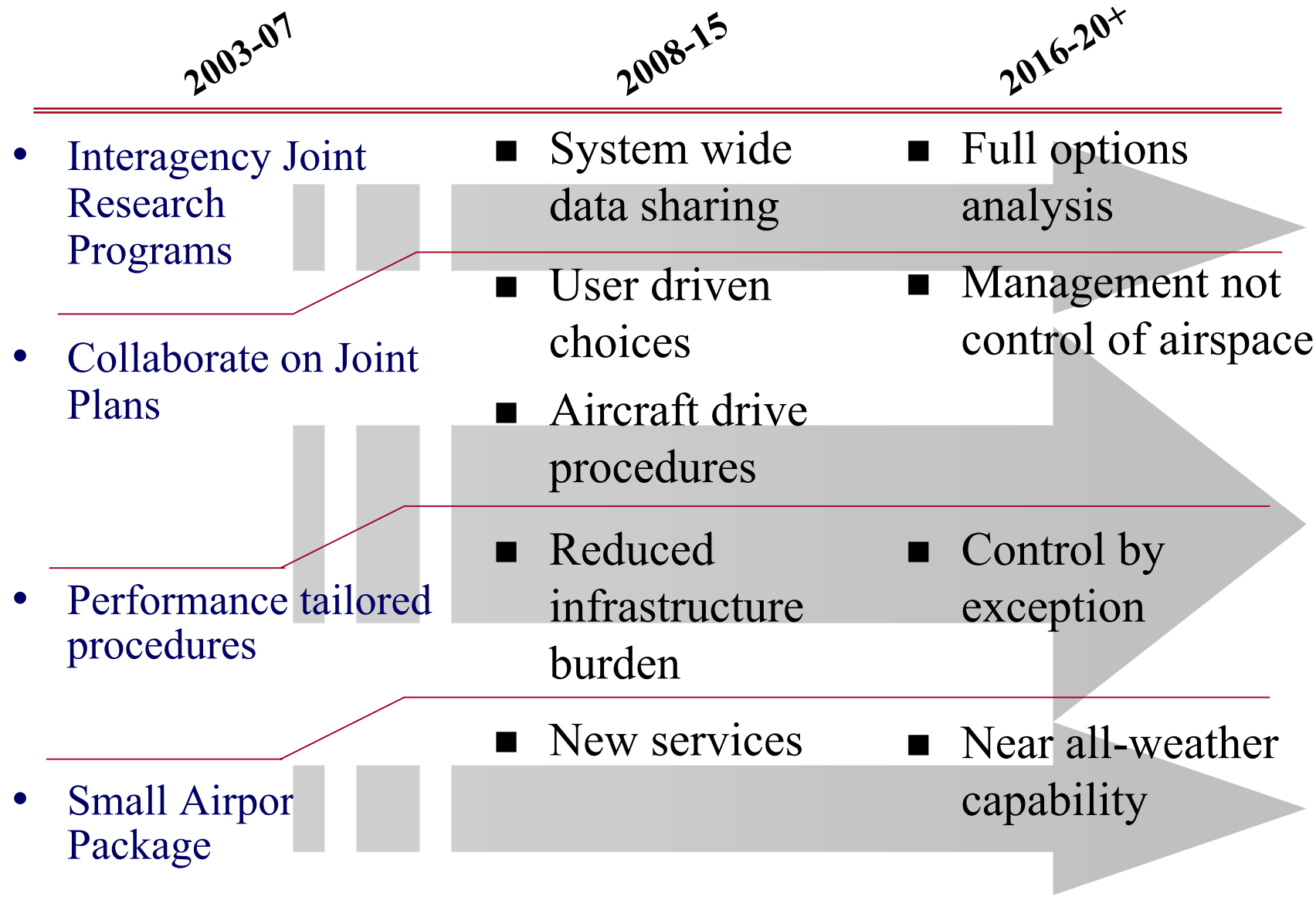
Route Sense & Avoid

Transformation

What's Different About This Approach?

- Transformation not modernization
- Gov't and industry wide requirements (efficiency, safety, capacity, security, defense environment)
- Inter-agency plan approved by high level policy board
- Has a body that provides for continuous inter-agency coordination and oversight
- Driven by operations concept that is globally interoperable

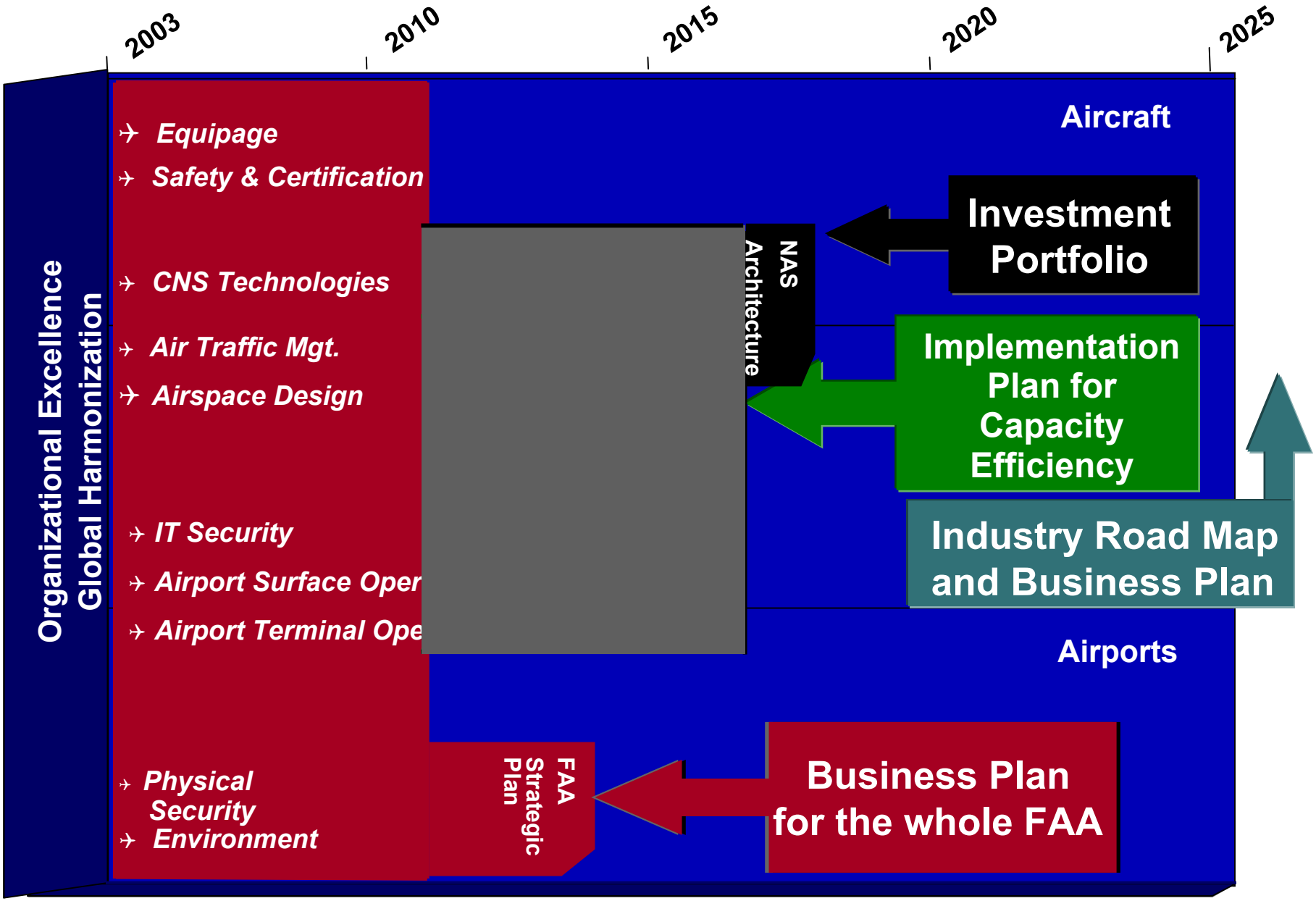
Path to the Future



Inter-Agency Synergy is Working
"Early Victories"

- Routine use UAVs
- Common Information Network
- National Weather Strategy
- Near-term Surveillance Data Network
- Small Community Air Mobility Package
- Inter-Agency Research

Relation to Other Plans



Major Activities and Anticipated FY 2004 Accomplishments

- Formally establish the Joint Program Office (DONE)
- Establish a Senior Policy Committee for the purpose of addressing legislative and policy issues (DONE)
- Establish an Advisory Committee for the purpose of coordinating industry and stakeholder input
- Develop 1st Edition of the National Plan
- Establish industry partnership to gain advantage from industry investment

Coordination Schedule

July 2	Agency leaders met with colleagues
July 22	ATCA Workshop
Aug-Sept	Establish Working Groups (include industry)
Sept 15	Close coordination of draft Framework
Sept 26	S-1 conducts Sr. level Policy Committee meeting
Dec 17	??

Thank You


Next Generation Air Transportation System
Joint Planning Office


FEDERAL AVIATION ADMINISTRATION


NASA


U.S. DEPARTMENT OF HOMELAND SECURITY


DEPARTMENT OF DEFENSE


DEPARTMENT OF TRANSPORTATION
UNITED STATES OF AMERICA